



Introduction

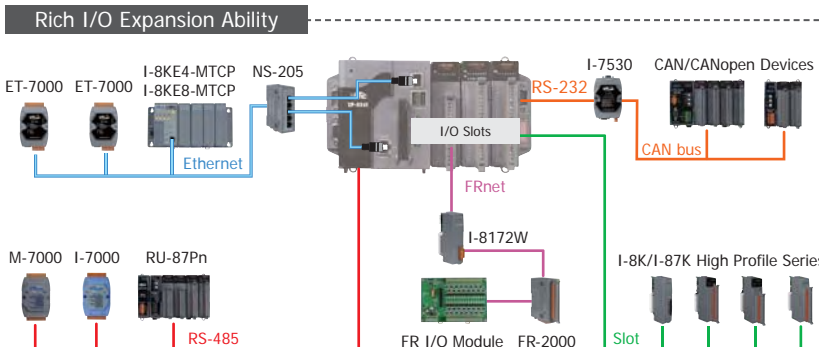
XP-8x47-CE6 Series is the new generation ISaGRAF based PACs of ICP DAS. It is equipped with an AMD LX800 CPU (500 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 0/3/7 I/O slots for high performance parallel I/O modules (high profile I-8K Series) and serial I/O modules (high profile I-87K series).

The benefits of running Windows CE 6.0 on XPAC include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. XPAC is also capable of running ISaGRAF and PC-based control software such as Visual Basic .NET, Visual C#, etc. It has all of the best features of both traditional PLCs and Windows capable PCs.

ISaGRAF is the most powerful SoftLogic package on the market. ISaGRAF is a PLC-like software and it supports IEC 61131-3 standard PLC programming languages (LD, FBD, SFC, ST, IL, FC), and can run the application generated by the workbench on any ISaGRAF PACs. The ISaGRAF workbench Ver. 3.x features

- IEC 61131-3 Standard Open PLC Programming Languages (LD, FBD, SFC, ST, IL, FC) + Flow Chart (FC)
- Auto-Scan I/O
- On-Line Debug/Control/Monitor, Off-Line Simulation
- Simple Graphic HMI
- Support Soft-GRAF HMI

Applications



Highlight Information

- Windows CE 6.0
- Hard Real-Time Capability
- ISaGRAF Ver.3 SoftLogic Inside (IEC 61131-3)
- PLC Feel
- AMD LX 800 CPU (32-bit, 500MHz)
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support Soft-GRAF HMI
- PC Power, Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C



Features

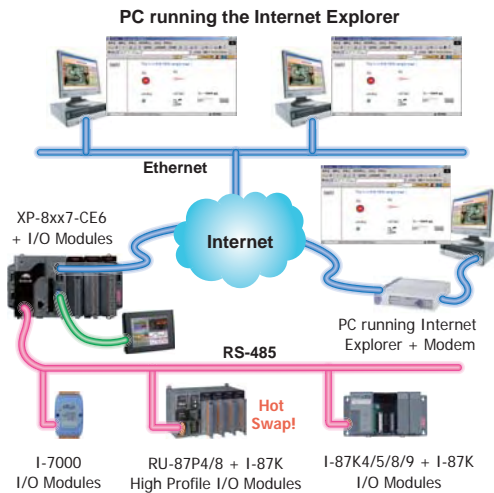
Software

- Windows CE.NET 6.0 Operating System
- Development Software: ISaGRAF Ver.3
 - ☐ Running on Windows 95/98/NT/2000/XP/Vista/7
 - ☐ All-in-one design environment
 - ☐ Easy to integrating with HMI/SCADA/MMI
- Support Modbus Master & Slave Protocols
 - ☐ Modbus TCP Master (Max. 100 devices)
 - ☐ RTU, ASCII, RS-232/485/422 Master (Max. 33 ports)
 - ☐ Modbus RTU (RS-232/485/422) Slave (Max. 9 ports)
 - ☐ Modbus TCP/IP Slave (Max. 64 connections)
- Support GPS/ZigBee/Radio Wireless & SMS
- Support Data Exchange
- Support CAN/CANopen
- Support FRnet I/O (Via I-8172W)
- Support Data-Recorder & Data-Logger
- Support Motion Control & VW Solutions
- Support Soft-GRAF HMI
- Support Microsoft SQL Server communication

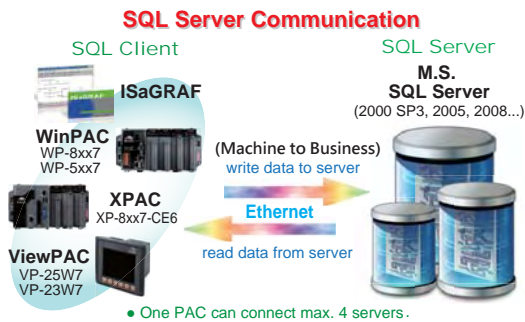
Hardware

- Powerful CPU module
 - AMD LX 800 CPU (32-bit and 500 MHz)
- Memory size:
 - ☐ RAM (512 MB), Built-In Flash Disk (4 GB)
 - ☐ EEPROM (16 KB)
 - ☐ Dual Battery-Backup SRAM (512 KB)
 - ☐ CF Card (1 GB, support up to 32 GB)
- VGA Port x 1, USB 2.0 Ports x 2
- 64-bit Hardware Serial Number
- Dual Watchdog Timers
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Ethernet Ports (10/100M)
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

Multiple Web HMI



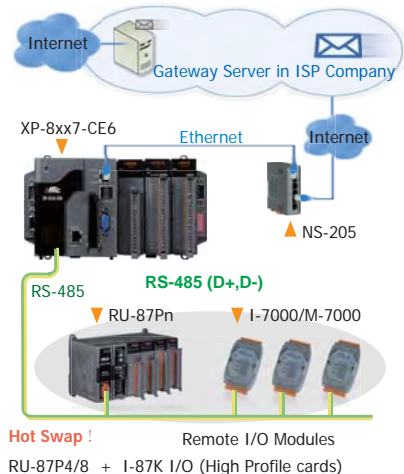
Database Application



Motion Control: Using I-8094F/8092F/8094

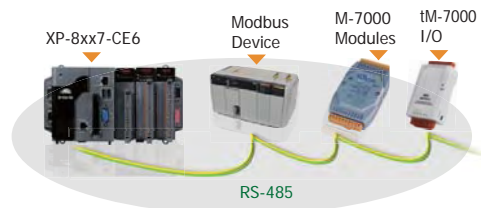


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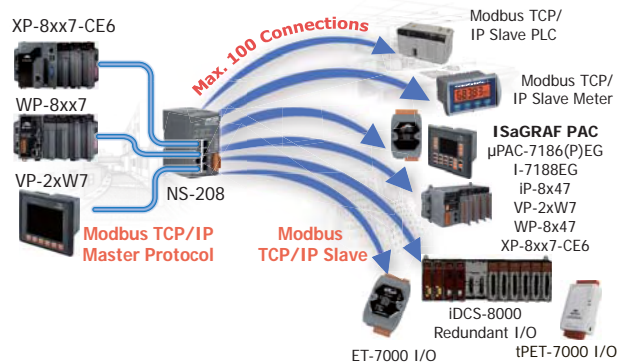


Modbus Master Ports

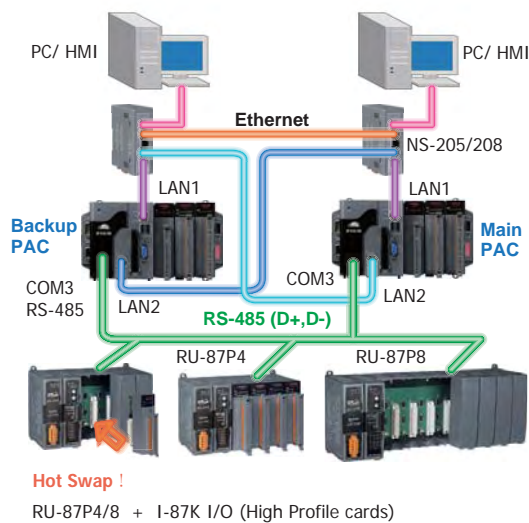
Modbus RTU/ASCII Master



Modbus TCP/IP Master

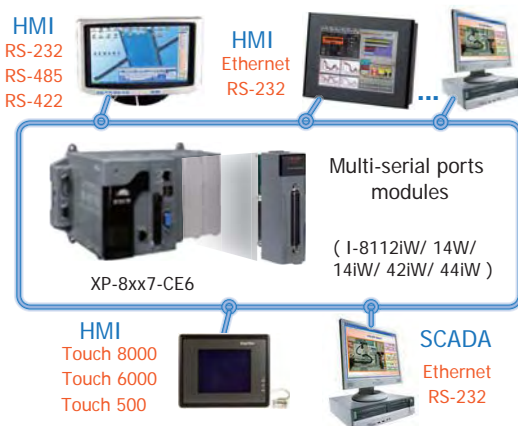


Hot-Swap Redundant System



Modbus Slave : RTU / TCP

- Modbus RTU (RS-232/485/422) Slave: max. 9 ports
- Modbus TCP/IP Slave: max. 64 connections



Specifications

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Compact PAC

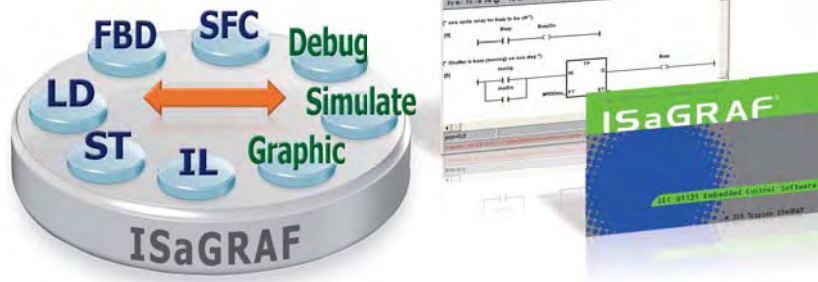
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XP-8000-CE6 Series

XP-8047-CE6/8347-CE6/8747-CE6

Models		XP-8047-CE6	XP-8347-CE6	XP-8747-CE6
System Software				
OS		Windows CE 6.0 core version		
.Net Compact Framework		3.5		
Embedded Service		FTP Server, ASP (Java Script, VB Script), SQL Compact Edition 3.5		
SDK Provided		DII for Visual Studio .Net 2005/2008		
Multilanguage Support		English, German, French, Spanish, Russian, Italian, Japanese, Simplified Chinese, Traditional Chinese		
Development Software				
ISaGRAF Software	ISaGRAF Ver.3	IEC 61131-3 standard.		
	Languages	LD, ST, FBD, SFC, IL & FC Support Soft-GRAF HMI: XP-8xx7-CE6, WP-8xx7 and VP-2xW7 PAC		
	Max. Code Size	2 MB		
	Scan Time	3 ~ 15 ms for normal program 15 ~ 50 ms (or more) for complex or large program		
Non-ISaGRAF		Options: VS.NET 2005/2008 (VB.NET, C#.NET)		
Web Service				
Web HMI		PC running Internet Explorer can monitor/control PAC via Internet/modem		
Security		Web HMI supports three levels username and password protection. (high/middle/low)		
CPU Module				
CPU		AMD LX 800 processor (32-bit & 500 MHz) or compatible		
System Memory		512 MB DDR SDRAM		
Dual Battery Backup SRAM		512 KB (for 5 years data retain while power off)		
Flash		4 GB as IDE Master		
EEPROM		16 KB Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card		1 GB (support up to 32 GB)		
RTC (Real Time Clock)		Provide second, minute, hour, date, day of week, month, year		
64-bit Hardware Serial Number		Yes, for Software Copy Protection		
Dual Watchdog Timers		Yes		
Rotary Switch		Yes (0 ~ 9)		
DIP Switch		-	Yes (8 bits)	
VGA & Communication Ports				
VGA		Yes, (resolution: 1024 x 768, 800 x 600, 640 x480)		
Ethernet		RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators). Please use NS-205/NS-208 Industrial Ethernet Switch.		
USB 2.0		2		
COM 1		RS-232 (RxD, TxD and GND); non-isolated	Internal communication with the high profile I-87K series modules in slots	
COM 2		RS-232 (RxD, TxD and GND); non-isolated		
COM 3	RS-485	D2+, D2-; self-tuner ASIC inside		
	Isolation	3000 Vdc		
COM 4		RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5		RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots				
Slot Number		0	3	7
Hot Swap * Will be available		-	For High Profile I-87K Modules Only	
Mechanical				
Dimensions (W x L x H)		137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 mm
Installation		DIN-Rail or Wall Mounting		
Environmental				
Operating Temperature		-25 ~ +75 °C		
Storage Temperature		-30 ~ +80 °C		
Ambient Relative Humidity		10 ~ 90% RH (non-condensing)		
Power				
Input Range		+10 ~ +30 Vdc		
Isolation		1 kV		
Redundant Power Inputs		Yes, with one power relay (1 A @ 24 Vdc) for alarm		
Capacity		1.8 A, 5 V supply to CPU and backplane, 15 W in total	1.8 A, 5 V supply to CPU and backplane, 5.2 A, 5 V supply to I/O expansion slots, 35 W in total	2.0 A, 5 V supply to CPU and backplane, 5.0 A, 5 V supply to I/O expansion slots, 35 W in total
Consumption		14.4 W (0.6 A @ 24 Vdc)	14.4 W (0.6 A @ 24 Vdc)	16.8 W (0.7 A @ 24 Vdc)

ISaGRAF Specifications



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Compact PAC

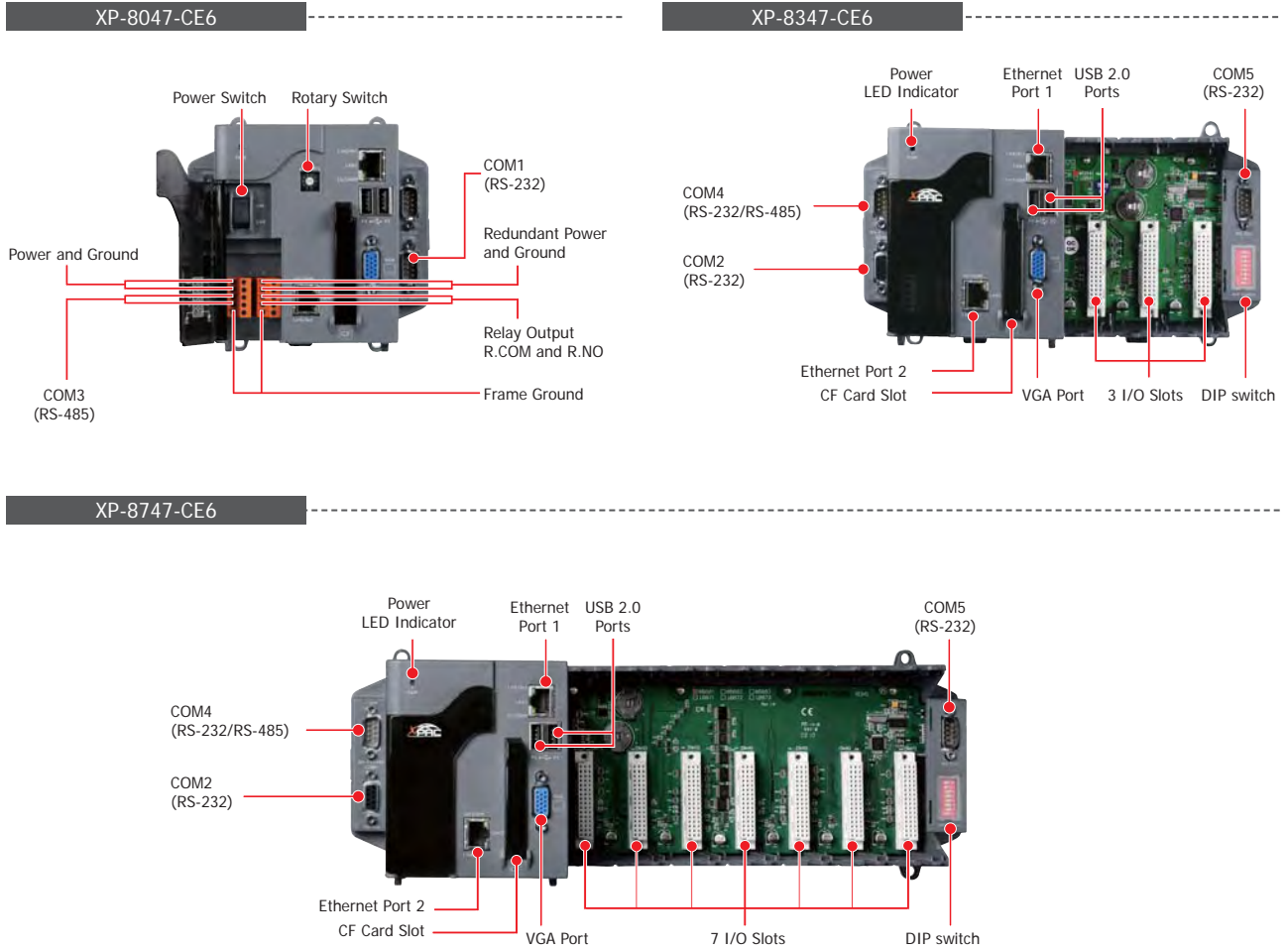
Protocols (some protocols need optional devices)		
Net ID		1 ~ 255, user-assigned by software
Modbus TCP/IP Master		Link to max. 100 devices that support Standard Modbus TCP/IP Slave protocol
Modbus RTU/ASCII Master		Max. 33 Ports : COM1 ~ 33 (To connect to other Modbus Slave devices). (*)
Modbus RTU Slave		Max. 9 Ports : COM1 ~ 33 (For connecting ISaGRAF, PC/HMI/OPC Server & HMI panels). (*)
Modbus TCP/IP Slave		2 Ethernet Ports all support Modbus TCP/IP Slave protocol for connecting ISaGRAF & PC/HMI. 2 Ports support up to 64 connections.
Web HMI Protocol		Ethernet Ports for connecting PC running Internet Explorer. (*)
I-7000 & I-87K RS-485 Remote I/O		One of COM3~4 supports I-7000 I/O modules, I-87K base + I-87K Serial I/O boards or RU-87Pn + I-87K High Profile I/O boards as remote I/O. Max. 255 modules of I-7000/87K Remote I/O for one PAC.
M-7000 Series Modbus I/O		Max. 33 RS-485 ports. Each port can connect up to 32 M-7000 Modules.
Modbus TCP/IP I/O		LAN2 supports ICP DAS Ethernet I/O : I-8KE4-MTCP and I-8KE8-MTCP If LAN2 is broken, it will switch to LAN1 automatically to continuously work. (This need LAN1 & LAN2's IP are set in the same IP domain)
FRnet I/O		Support max 7 pcs. I-8172W boards in slot 1 ~ 7 to connect to FRnet I/O modules, like FR-2053, FR-2057 FR-32R, FR-32P. Each I-8172W board can link max. 256 DI plus 256 DO ch.
Send Email		Supports mail_snd and mail_set functions to send email with one attached file via Ethernet port.
Ebus		To exchange data between ICP DAS's ISaGRAF Ethernet PACs via Ethernet port. (LAN2 Port only)
SMS: Short Message Service		COM4 or COM5 can link to a GSM Modem to support SMS. User can request data/control the controller by cellular phone. The controller can also send data & alarms to user's cellular phone.
User-Defined Protocol		User can write his own protocol applied at COM1~COM5 & COM6~COM33(if multi-serial port boards are plugged in) by Serial communication function blocks. (*)
MMICON/LCD		COM4 or COM5 supports ICP DAS's MMICON.
UDP Server & UDP Client : Exchange Message & Auto-Report		LAN1 or LAN2 support UDP Server and UDP Client protocol to send/receive message to / from PC/HMI or other devices. For example, to automatically report data to InduSoft's RXTX driver.
TCP Client : Exchange Message & Auto-Report		LAN1 or LAN2 support TCP Client protocol to send/receive message to/from PC/HMI or other devices which support TCP server protocol.
SQL Client		Support SQL Client function to write data to (or read data from) Microsoft SQL Server (2000 SP3, 2005, 2008).
Hot-Swap and Redundant System		This redundant system has setup two "Active IP" address point to the active LAN1 and LAN2 ports always. One or more PC/ HMI/SCADA can communicate with this redundant system via one of the two given active IP. So the PC/HMI/SCADA can access to the system easily without any notice about which PAC is currently active. Moreover, the new redundant system can integrate with the RU-87P4/87P8 Expansion Unit plus the I-87K high-profile I/O cards to support the hot-swap application. If the I/O card is damaged, the maintenance person just takes one good-card with same model number to hot-swap the damaged one without stopping this redundant system.
CAN/CANopen		COM1, 2, 4, 5 or COM6~COM33 to connect one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One PAC supports max.32 RS-232 ports to connect max.32 I-7530. (*)
HART Solutions		Support I-87H17W modules in slot 1 to 7 to communicate with other HART devices.
Optional I/O Functions (Refer to ISaGRAF PAC I/O Selection Guide for I/O Module list)		
PWM Output	High Speed PWM Module	I-7088, I-8088W, I-87088W: 8-ch PWM outputs, software support 1 Hz ~ 100 kHz (non-continuous), duty: 0.1 ~ 99.9% 88-ch max. 250 Hz max. For Off=2 & On=2 ms. Output square wave: Off: 2~32766 ms, On: 2 ~ 32766 ms.
	DO Module as PWM	Optional DO Boards: I-8037W, 8041W, 8041AW, 8042W, 8050W... (Relay Output boards can not generate fast square wave.)
Counter, Encoder, Frequency	Parallel DI Counter	8 ch. max. for 1 controller. Counter val: 32 bit. 250 Hz max. Min. ON & OFF width must >2 ms. Optional DI Boards: I-8040W, 8040PW, 8042W, 8048W, 8050W, 8051W, 8052W, 8053PW, 8054W, 8055W, 8058W, 8063W...
	Serial DI Counter	Counter input: 100 Hz max. Counter value: 0 ~ 65535 (16 bit) Optional Serial I-87K DI Boards: I-87040W, 87046W, 87051W, 87052W, 87053W, 87053W-A5, 87054W, 87055W, 87063W...
	Remote DI Counter	All remote I-7000 & I-87K DI modules support counters. 100 Hz max. value: 0 ~ 65535
	High Speed Counter	I-87082W: 100 kHz max. 32 bit; I-8084W: 250 kHz max. 32 bit
	Encoder	I-8093W: 3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4 MHz for pulse/direction and cw/ccw input mode. I-8084W: 250 kHz max., 4-ch encoder, pulse/direction or up/down or A/B phase (Quad. mode). Not support Encoder Z-index.
Motion	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz;
	Motion Control	With one or serval I-8092F (2-axis) or I-8094F/I-8094 (4-axis)
*Note: COM6 ~ COM33 are resided at the expansion boards if they are plugged on slot1 ~ 7 of XP-8xx7-CE6. XP-8347-CE6/8747-CE6's COM1 is for internal communication with I-87K modules in slots only.		

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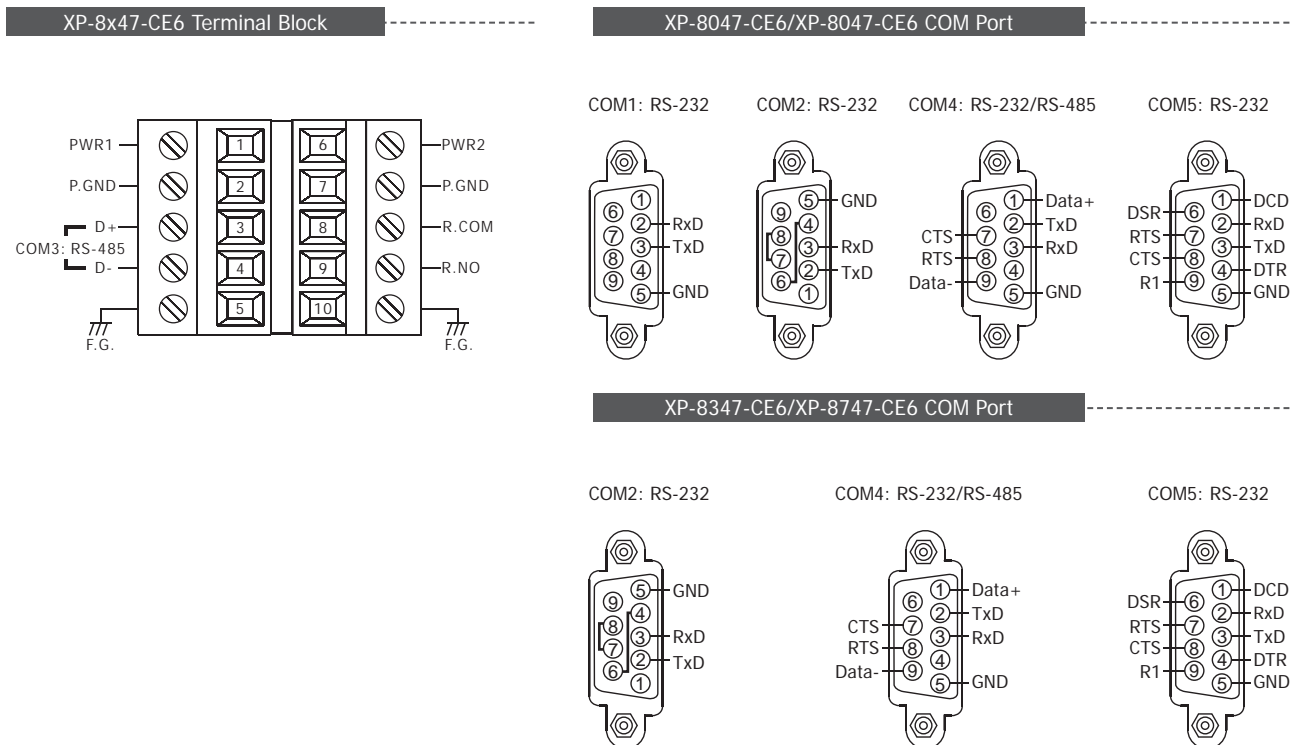
XP-8000-CE6 Series

XP-8047-CE6/8347-CE6/8747-CE6

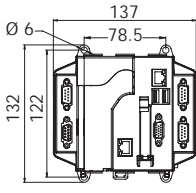
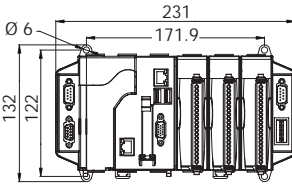
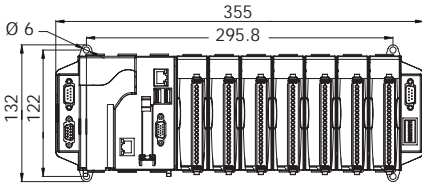
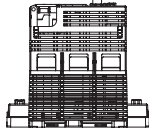
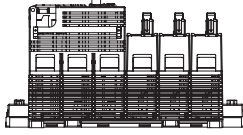
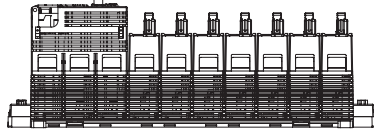
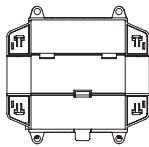
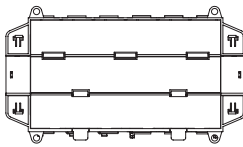
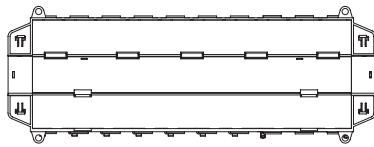
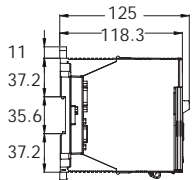
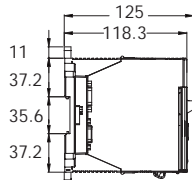
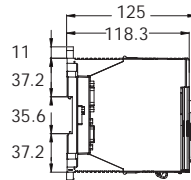
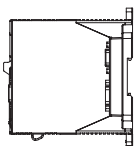
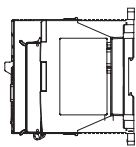
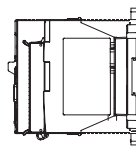
Appearance



Pin Assignments



Dimensions (Unit: mm)

XP-8047-CE6	XP-8347-CE6	XP-8747-CE6
		
Front View	Front View	Front View
		
Bottom View	Bottom View	Bottom View
		
Rear View	Rear View	Rear View
		
Left Side View	Left Side View	Left Side View
		
Right Side View	Right Side View	Right Side View

Ordering Information

XP-8047-CE6 CR	0 I/O slot WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)
XP-8347-CE6 CR	3 I/O slots WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)
XP-8747-CE6 CR	7 I/O slots WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)

Accessories

ISaGRAF Development Software	
ISaGRAF-256-E	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with One Application Book (English version) and one USB Dongle
ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with One Application Book (Chinese version) and one USB Dongle
ISaGRAF-32-E	ISaGRAF Workbench Software Ver.3 (32 I/O Tags) with One Application Book (English version) Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256. (Using ISaGRAF-32 can control more than 32 I/O tags. Please refer to ISaGRAF User's Manual Ch. 3.4)
ISaGRAF-32-C	ISaGRAF Workbench Software Ver.3 (32 I/O Tags) with One Application Book (Chinese version) Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256. (Using ISaGRAF-32 can control more than 32 I/O tags. Please refer to ISaGRAF User's Manual Ch. 3.4)
DP-660	24 V _{DC} /2.5 A, 60 W and 5 V _{DC} /0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200 CR	24 V _{DC} /5.0 A, 120 W Power Supply with DIN-Rail Mounting (RoHS)
MDR-60-24 CR	24 V _{DC} /2.5 A, 60 W Power Supply with DIN-Rail Mounting (RoHS)
NS-205 CR	Unmanaged 5-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)
NS-208 CR	Unmanaged 8-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)

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Compact PAC

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XP-8000-CE6 Series

XP-8047-CE6/8347-CE6/8747-CE6